BE-Alg. 1 | Wednesday 2-16-11

① $\frac{1}{2x} + \frac{3}{4x^2}$

② $y = f(x) = 5x^2 + 2x + 1$

- (A.) $f(0) = ?$
- (b) $f(2) = ?$
- (c) $f(-1) = ?$
- (d) $f(2a) = ?$

③ Graph $y = f(x) = x^2 - 8x + 12$

- Homework review Pg 528 # 1→3, 6, 9, 18.

In the BE we graphed the quadratic function $y = x^2 - 8x + 12$

The corresponding quadratic equation is when y is equal to zero

$$0 = x^2 - 8x - 12$$

This Also represents, when solved, the x-intercepts since by definition when $y = 0$ in the x-y plane you are on the x-axis.

You should check your graph and verify the solution to: $0 = x^2 - 8x - 12$ is where the parabola crosses the x-axis.

sum $\Rightarrow -8$
prod $\Rightarrow +12$
-2 -6
-1

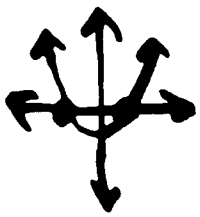
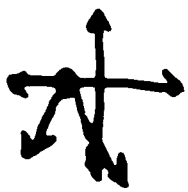
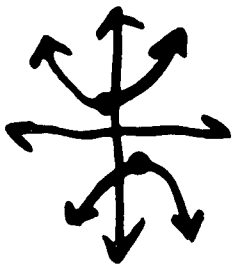
$0 = (x-2)(x-6)$

$\boxed{x = \{2, 6\}}$

*d

The solutions to the quadratic equation (the x-intercepts) are also called the **roots** of the equation or the **zeros** of the function.

What the discriminant tells you about the roots of the QE

b^2-4ac	roots
 Positive, perfect square	2 rational roots
Positive, not perfect square	2 irrational roots
 Zero	1 rational root PST $\Rightarrow (a \pm b)^2$
 Negative	$\varnothing$ roots, parabola never crosses x-axis.

Ex 2 Pg 534 GRAPH, check the roots:

$b^2 + 4b = -4$

A "double root" $\Rightarrow d = 0$

$\therefore$ PARABOLA just "touches" X-AXIS AT ONE POINT.

Ex 3 Pg 534 GRAPH, check the roots:

$x^2 - x + 4 = 0$

No roots, PARABOLA never crosses the X-AXIS!

HOMEWORK: • Read Ch 10-2 Solving Quadratic Eq.'s By Graphing

• Pg. 535-536 #1, 2, 4 → 6.